

*a1* real-valued coefficient, which is determined by properly selecting a number of points on a u-v plane defined for simplifying the design procedure according to the selected design algorithm.

IN THE CLAIMS

Please amend claims 1-6 by rewriting same to read as follows.

--1. (Amended) A wide-band array antenna comprising:

N x M antenna elements, and

a plurality of multipliers, one multiplier connected to each said antenna element, and each multiplier having a real-valued coefficient, wherein when said antenna elements are placed at distances of d<sub>1</sub> and d<sub>2</sub> in directions of N and M, respectively, the real-valued coefficient of each multiplier is C<sub>nm</sub>, and by defining two variables as v=wd<sub>1</sub>sinθ/c, and u=wd<sub>2</sub>cosθ/c, the response of said wide-band array antenna can be given as:

$$H(u,v) = \sum_{n=1}^N \sum_{m=1}^M C_{nm} e^{j(n-1)v} e^{-j(m-1)u} \quad (5)$$

by selecting points (u<sub>01</sub>, v<sub>01</sub>) on a u-v plane according to a predetermined angle of beam pattern and [the] a center frequency of a predetermined frequency band, elements b<sub>l</sub> of an auxiliary vector B = [b<sub>1</sub>, b<sub>2</sub>, ..., b<sub>L</sub>] ( L << N x M ) [can be] are calculated and the coefficient C<sub>nm</sub> of each said multiplier corresponding to each antenna element is calculated as

$$C(n,m) = \sum_{l=1}^L G_a^{-1} b_l e^{-j(n-1)v_{0l}} e^{j(m-1)u_{0l}} \quad (17)$$

--2. (Amended) The wide-band array antenna as set forth in claim 1, wherein

each of said antenna elements has a frequency dependent gain which is

the same for all antenna elements.

--3. (Amended) The wide-band array antenna as set forth in claim 1, wherein each of said antenna elements has a gain set to a predetermined value at a predetermined frequency band, including the center frequency, at a predetermined angle.

*Q2*  
--4. (Amended) The wide-band array antenna as set forth in claim 1, further comprising

an adder for adding output signals from said plurality of multipliers.

--5. (Amended) The wide-band array antenna as set forth in claim 1, wherein a signal to be sent is input to said plurality of multipliers and an output signal of each said multiplier is applied to a corresponding antenna element.

--6. (Amended) The wide-band array antenna as set forth in claim 1, wherein said selected points ( $u_{01}, v_{01}$ ) on the u-v plane for computing the elements of said auxiliary vector B are symmetrically distributed on the u-v plane.

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